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ABSTRACT

The document summarizes the findings of the Western Australian Council for Special Education regarding the methodological and administrative problems involved in educating hearing impaired children. Following an outline of specific principles and recommendations relating to education of hearing impaired children are chapters focusing on the following topics: historical background of schools for the deaf in Western Australia; auditory impairments and its classifications; educational characteristics of children with impaired hearing and methods used in their education; educational facilities in Western Australia for children with impaired hearing; the Speech and Hearing Center's program; teachers of the deaf; and education of the adult deaf person with acquired hearing loss. Also included are a list of references and charts on classification. (SBH)

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EDUCATION OF HEARING IMPAIRED CHILDREN IN WESTERN AUSTRALIA

Report to the Minister for Education

The Western Australian Council for Special Education

November, 1976

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WESTERN AUSTRALIAN COUNCIL FOR SPECIAL EDUCATION

The Council was established by the Minister for Education in October 1974 to advise and report on all aspects of special education.

The terms of reference for the work of the Council include the following:

1. Advise and assist in the development of tertiary education programmes.
2. Advise on and commission research and evaluation in the area of special education.
3. Rationalise total State effort within the field of special education.
4. Provide a forum for debate in the field of special education.
5. Provide a liaison between professionals and between profession and community.
6. Assist and advise on programme development.
7. Provide professional arbitration in the field of special education.
8. Report and advise the Government on matters relating to special education.

The present members of the Council are:

Dr W.D. Neal, Dean of Teacher Education, W.A. Institute of Technology (Chairman).

Dr H.J. Blackmore, Psychiatrist Superintendent, Heathcote Hospital, Mental Health Services.

Dr P.G. Cole, Senior Lecturer in Education, University of Western Australia.

Dr A. Little, Senior Lecturer in Psychology, University of Western Australia.

Miss A. Myers, Senior Advisory Teacher, Special Education Branch, Education Department.

Dr A.N. Stewart, Assistant Director-General (Resources), Education Department.

Mr R. Weiland, Principal, Sir James Mitchell School.

Mrs N.M. Kennealy, Research Officer, Education Department (Executive Officer)

PREFACE

The Council for Special Education was asked soon after its formation to review the education of hearing impaired children. Because of the number of submissions received by the Council priorities had to be assigned and it was not possible to commence detailed consideration of this area until 1976. The complexity of the methodological and administrative problems involved in the education of children with hearing impairment has required that the investigation be detailed and time consuming, and our report reflects the complexity of the area. For this reason it has been thought desirable to present a summary of the recommendations we have made as an introduction to the main body of the report. Council members wish to acknowledge the help received from many persons and organisations concerned with the educational and social welfare of the deaf in Western Australia. Written submissions were received from the Speech and Hearing Centre and the Parents and Citizens' Association of Western Australian Deaf Children. Council has received further valuable assistance from the Co-ordinator of Education of Children with Impaired Hearing and staff and representatives of the following organisations:

Australian Deafness Council (Western Australian Branch)

The Western Australian Deaf Society

The Western Australian Association for Better Hearing

The Speech and Hearing Centre

The Board of Management of the W.A. School for Deaf Children

The Parents and Citizens' Association of Western Australian Deaf Children

Western Australian Education Department Schools for Children with Impaired Hearing.

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INTRODUCTION

Some general principles of relevance to the education of all handicapped children were enunciated in the first report of the Western Australian Council for Special Education. Council members believe these general principles are still valid and our investigation of the education of hearing impaired children in Western Australia has confirmed the relevance of these principles to the education of children with handicaps other than cerebral palsy. The following statement is taken from our first report (Education of Cerebral Palsied Children in Western Australia, 1975).

Basic Principles

It is misleading to define 'special education' as that which is provided for children who are not able to be taught in an ordinary school or classroom. Such a definition is inadequate because it evades a central issue, the question of which children can and should be catered for in an ordinary school. It also implies that ordinary schools are not suitable venues for the provision of special educational facilities for children with evident handicaps. Furthermore, the notion of an 'ordinary' school possibly reflects a lack of awareness among teachers of the wide range of individual needs among children already under their supervision.

While recognising that there are children with severe disabilities who, even with special assistance, are not able to cope with the social or physical environment of a normal school, the Council warns against too easily assuming that a child with a single handicap requires special treatment and a special environment to meet all aspects of his education. In short, the distinction between special and normal education is not categorical. Children have many different needs, and it is the Council's opinion that educators must keep in view the many organisational and pedagogical resources which may be deployed in meeting those needs.

It is therefore essential, for educational purposes, to assess the learning characteristics of each child regardless of the physical origins of any real or apparent disability. There is a "growing awareness that etiology per se and classification as such are not as significant as information about how the child behaves in learning situations" (U.N.E.S.C.O., 1973, p.156). If this premise is accepted then the way is open for re-consideration of the criteria on which children are grouped for educational purposes. A psychological advantage of minimising attention to the physical origins of handicaps is that it may be easier to focus on children's capabilities rather than on their disabilities as such. Grouping children for educational purposes on the basis of a medical classification is no more rational than prescribing medical treatment on the basis of educational performance.

The Council therefore affirms that as a general rule it should be policy to enrol all children in the local school where teachers, special advisors, therapists, equipment and other resources should be provided to meet the educational needs of all children. However, the Council also recognises that there will always be children for whom special provision must be made beyond that which can be provided by the local school, for example the bedridden, the severely mentally retarded and others who require prolonged or intensive specialist attention. The principle to be observed is that the local school should be equipped and staffed to educate the children in its neighbourhood and segregated education should be regarded as a last resort. In many cases where segregation is necessary the aim should be to prepare the child to return to his home and local school environment as soon as possible.

The Council believes, as a corollary of the principles outlined in previous paragraphs, that the education of the handicapped is a responsibility which must be assumed by Government. This does not mean that the efforts of voluntary organisations and voluntary workers will be no longer required and appreciated, but rather that their roles may need to change. Educational and specialist services have already become so expensive that voluntary organisations are being heavily subsidised by Government funding. But the most important issue is that the handicapped children could in many cases be educated in their local school, and if this occurs there will be less opportunity and need for special schools to function as separate institutions whoever may be their sponsor. The Schools Commission report observes:

> 15.38...There is now considerable support among handicapped children's organisations themselves for the view that they should hand over responsibility for school education and concentrate on supporting...other needs. (Schools Commission, 1975, p.243)

The other needs may include residential accommodation, sheltered workshops, medical and para-medical care, rehabilitation facilities and vocational training.

It is essential that the diagnosis of children's disabilities and the assessment of their educational needs be carried out by a centrally co-ordinated service. A co-ordinated assessment service could provide the appropriate blend of medical and educational expertise. With very young children the main emphasis would be on medical diagnosis but educational implications also need to be considered as early as possible to enable remedial programmes to be introduced. A co-ordinated service, rather than separate services catering for particular forms of disability, also helps to prevent problems such as parents being afraid of having their children labelled just because they have been to a particular diagnostic clinic. Multiple handicaps can be overlooked and a biased diagnosis can be made where children exhibit marginal symptoms which could be explained by more than one medical or psychological condition. The particular form of organisation for such an assessment service in the metropolitan area could be mirrored in regional country centres where a child referred because of a suspected handicap could be examined by the appropriate medical, educational and guidance personnel.

Following the re-statement of the general principles developed in our first report we wish to re-state the general recommendations from that report which have relevance to the education of children with impaired hearing.

> ...a centrally co-ordinated service should be established for the assessment and diagnosis of all forms of mental and physical handicap among children. Such a service would be staffed by educational, medical and psychological personnel.

> ...programmes of special education which are staffed and financed by the Government should be controlled by the Government and housed in Government owned facilities.

...the Education Department should adopt the policy of providing for the education of handicapped children as near to their homes as possible.

...the School Health Services of the Public Health Department should be responsible for the medical supervision of physically handicapped children in schools.

In addition we propose the following additional general principle:

...agencies contemplating the provision of educational facilities for handicapped children should be required, preferably by statute, to consult with the appropriate Government Departments at an early stage to ensure the rationalisation of services.

Specific Principles Relating to the Education of Children with Impaired Hearing

These principles can be divided into two categories.

1. Educational and social principles

   i. A variety of alternative educational approaches should be provided by the Education Department to cater for the needs of children with impaired hearing.

   ii. Facilities for initial early assessment and regular and systematic evaluation of hearing, educational and social developmental status are essential in order to ensure that at all times children with impaired hearing are being educated in the school most appropriate to their needs.

   iii. Parent and community involvement in the education and socialisation of children with impaired hearing should be encouraged and supported at all times.

   iv. The training of teachers of children with impaired hearing should prepare them to use a variety of methods so that the range of educational alternatives available to children with impaired hearing is not restricted.

2. Organisational principles

   i. Educational facilities for children with impaired hearing should be fully co-ordinated with the aim of maximising flexibility in the provision of educational programmes.

ii. The assessment, systematic review and evaluation of progress and appropriate placement of children with impaired hearing should be co-ordinated by a central authority.

iii. Co-operation between professional and community groups should be actively encouraged in policy development and the review of programmes.

Specific Recommendations Relating to the Education of Children with Impaired Hearing

The recommendations based on these general and specific principles which we have made in this report are listed below with reference to the relative paragraphs in parentheses.

1. The organisational plan proposed by the Education Department directed to achieving a comprehensive educational service for all children with impaired hearing should be implemented. (4.1-4.5)

2. The State Educational Assessment and Guidance Centre for Children with Impaired Hearing should be relocated in a central metropolitan situation. (4.6)

3. All schools for children with impaired hearing should be located in close proximity to other educational facilities to ensure opportunity for the greatest possible integration with hearing children. (4.6, 5.7)

4. A set of guidelines should be formulated on the problems associated with the education of hearing impaired children with multiple handicaps. (4.8)

5. Suitable staff should be employed to provide counselling services to parents and teachers in country areas. (4.9, 4.10)

6. When children from remote areas are required to visit Perth for specialist assessment and guidance which cannot be provided in their area a travelling allowance should be made available to their parents. (4.9, 4.10)

7. Future planning should emphasise the development of regional centres for the education of children with impaired hearing. (4.11, 4.12)

8. Alternative forms of transport should be used where possible to convey children living in outlying areas to central bus terminals. (4.11, 4.12)

9. Formal training in the use of public transport should be given to children with impaired hearing considered capable of achieving independence in travel. (4.11, 4.12).

10. The secondary school facilities available to children with impaired hearing should be comparable with those provided for hearing children and action should be taken by the Education Department to upgrade the facilities at the Swanbourne unit and the Mosman School for the Deaf. (4.13)

11. The curriculum for students with impaired hearing at upper and post-secondary levels should be modified to take account of their differing learning rates. (4.14)

12. The Education Department should make provision to extend the secondary education of students with impaired hearing to the age of eighteen years. (4.14)

13. A trained teacher with the ability to communicate effectively with students with impaired hearing should be appointed to assist those students who are pursuing post-secondary courses. (4.15, 4.16)

14. An adult with impaired hearing, skilled in manual communication, should be appointed to the staff of schools where there are children who rely upon this method of communication. (4.17)

15. Tuition in manual communication should be provided in schools for children with impaired hearing whose lip-reading and speech skills in early adolescence are poorly developed. (4.17)

16. A Panel to advise on the needs of children with impaired hearing should be formed. The membership of the Advisory Panel should consist of -

    i. Two educators who are not actively involved in the education of children with impaired hearing but who have a wide knowledge of special and general education. These members should be appointed by the Minister for Education.

    ii. Two parents of children with impaired hearing to be appointed by the Minister for Education.

    iii. The Co-ordinator of Education of Children with Impaired Hearing.

    iv. The principals of the several schools for children with impaired hearing.

    It is recommended that the chairperson of the Advisory Panel be elected annually by members of the Panel. The Panel should have powers to co-opt persons with special expertise on a short term basis for specific purposes. (4.8)

17. The Education Department should examine the needs of Aboriginal children with impaired hearing and as a first step surveys should be carried out to determine the incidence of hearing impairment in Aboriginal children in Western Australia. (4.19)

18. In schools where Education Department teachers are employed the Education Department should have the right to organise those schools within the Department's overall system. This recommendation does not deny the right of private schools to operate as they wish within the limits of the Education Act. (5.1-5.6)

19. We recommend that if the controlling body of the Speech and Hearing Centre decides that its school is to remain independent, the payment of teachers at the Centre by the Education Department should be discontinued. (5.1-5.6)

20. When parents of children with impaired hearing are being counselled regarding the appropriate educational placement of their children, full information regarding available options should be given. (5.8, 5.9)

21. A teacher education programme should be developed at one of the Western Australian tertiary institutions for the training of teachers of the deaf. (6.1)

22. Promotional prospects within deaf education, as within other areas of special education, should be such as to allow teachers to gain promotion and to receive recognition for relevant qualifications in special education. (6.2)

23. Teachers trained to work in Western Australian schools for children with impaired hearing should be acquainted with the full range of teaching methods used with children with impaired hearing. (6.3)

24. The Education Department should provide financial support to enable selected personnel to travel inter-State and abroad to keep abreast of recent trends in the education of children with impaired hearing. (6.4)

25. The Technical Education Division should investigate the feasibility of instituting courses covering all aspects of communication for adults with acquired hearing loss; for hearing adults who wish to communicate with deaf adults whose preferred language is sign language; and for hearing parents who may feel that the use of sign language would allow them to communicate more adequately with their deaf children. (7.1-7.7)

CHAPTER ONE

HISTORICAL BACKGROUND

1.1 The first school for the deaf in Western Australia was opened in a house rented by the newly formed "West Australian Deaf and Dumb Institution" in 1897. Following a move to a larger rented house in the same year, the foundation-stone for the present Mosman School was laid in 1899 and the building was opened in 1900. Between 1900 and 1940 the State Government helped finance the institution by providing a grant of £500 per annum. Numbers gradually increased as parents became aware of how the institution could help their deaf children and in 1919, after many years of pressure, education of deaf children between the ages of six and sixteen became compulsory.

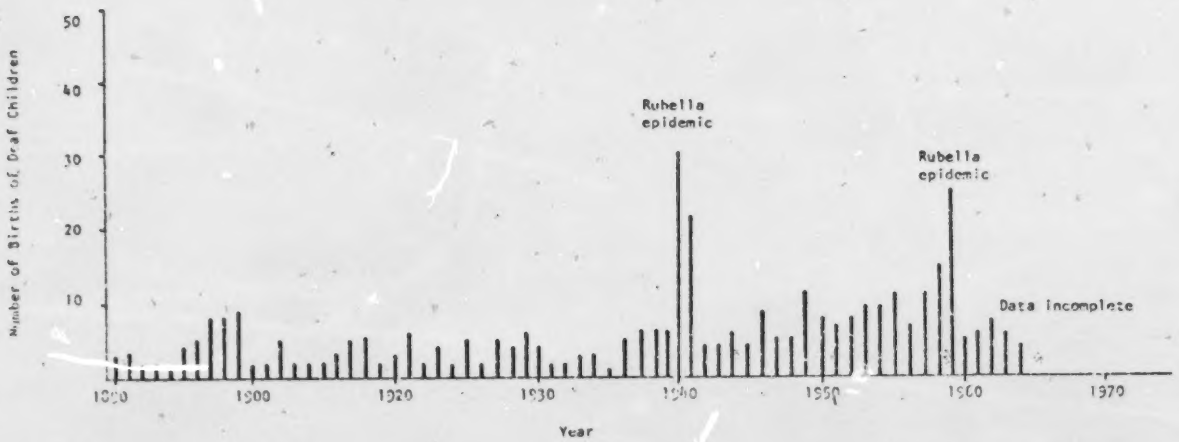
The original aim was to maintain a self-supporting school, boys being trained to work in the gardens and orchard and girls being trained in domestic work. The curriculum was gradually broadened and in 1921 the name of the institution was changed to that of "The Western Australian School for Deaf and Dumb Children" to emphasise the educational component of the institution's programme.

During this early period methods of teaching the deaf gradually changed. Growing awareness of the potentialities of oral and aural training, coupled with the introduction of the transistorised hearing aid and the increasing availability of sophisticated electronic audio-training equipment resulted in changing methodologies. The deletion of the word "Dumb" from the name of the school, which, in 1956, became "The W.A. School for Deaf Children (Inc.)" reflects the awareness of the possibility of developing functional speech in the hearing impaired. The Cottesloe Kindergarten and Infant School for Deaf Children was opened in the grounds of the Cottesloe Infant School in the same year, using predominantly oral methods.

1.2 The long term planning of education for deaf children has been hampered by the inability to predict sudden increases in births of deaf children following Rubella epidemics. Figure 1.1 illustrates the rapid increase in the incidence of deafness following Rubella epidemics.

FIGURE 1.1: W.A. SCHOOL FOR DEAF CHILDREN
NUMBER OF DEAF CHILDREN BORN IN WESTERN AUSTRALIA, 1890-1970

(Adapted from: N. Green, "History of the W.A. School for Deaf Children" n.d.)



As a result of the increased number of children with hearing impairments following an epidemic of Rubella in 1939 and 1940, the Western Australian Education Department assumed responsibility for the education of deaf children and covenanted in 1949 with the Board of Management of the Western Australian School for Deaf and Dumb Children "to provide at Departmental cost and expense in all respects such further or additional accommodation as may reasonably be required for the education and residence of said children" (Departmental files). The Education Department also undertood the responsibility of paying the Superintendent and two assistant teachers.

1.3 From its opening in 1897 until 1949 the school was directed by Superintendents who were responsible for the supervision of boarding arrangements, educational programming and staff training.

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When the Education Department assumed responsibility the incumbent Superintendent retained his title, position and duties in the residential school but became responsible to the Superintendent of the Guidance and Special Education Branch of the Education Department. The classes for hard-of-hearing children in normal schools were established under the aegis of the Superintendent of Guidance and Special Education. Educational programmes, teacher training, parent counselling and pre-school programmes were the responsibility of the Principal Advisory Teacher (Handicapped Children) who had been specially trained in oral methods at Manchester University. When the Superintendent of the W.A. School for Deaf Children retired in 1955, a new position of Supervisor of Deaf Education was created. The Supervisor assumed the responsibilities of the former Superintendent of the W.A. School for Deaf Children and the duties in the area of deaf education previously undertaken by the Principal Advisory Teacher (Handicapped Children). In 1966 a headmaster solely responsible for the school was appointed to the W.A. School for Deaf Children in order to allow the Supervisor to allocate more time to staff training, supervision and parent guidance but the Supervisor remained in charge of the residential facilities.

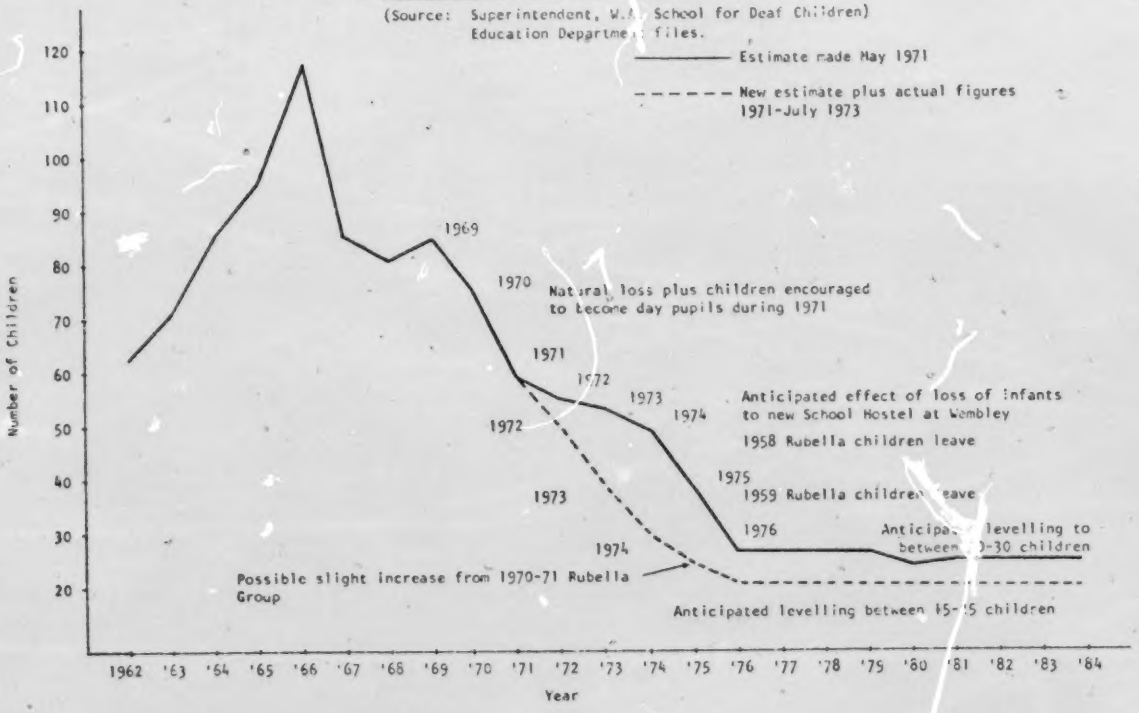
Following the retirement of the Supervisor in 1970 a full-time Superintendent was appointed to manage the residential facilities, the appointment being made possible by the payment of a subsidy by the Commonwealth Department of Health. Between 1970 and 1974 parent guidance and counselling were the responsibility of the Superintendent of Guidance and Special Education Branch. The position of Supervisor of Deaf Education was advertised in 1972 but was not filled. It was later re-advertised as Co-ordinator of Education of Children with Impaired Hearing and Mr B.J. Fisher was appointed to the position in 1972.

1.4 The increase in the number of deaf children requiring education in the post-war period is illustrated in Figures 1.1 and 1.2 and necessitated the building of additional school accommodation at the Mosman School. The Rubella epidemic of 1959 led to a sudden large increase in deaf births and over the next few years

school and residential accommodation were overtaxed. The first stage of the new school block, providing eight classrooms, was completed in 1964. The second stage, which added a reception room, headmaster's room, medical examination room, office, staff room, store rooms, home science room, manual arts room and toilets, was completed in 1971. Additions were made to the Superintendent's residence in 1972. Major improvements made by the Board of Management of the W.A. School for Deaf Children include a swimming pool opened in 1965 and the C.S. Harper Memorial Library, opened in 1969.

FIGURE 1.2: W.A. SCHOOL FOR DEAF CHILDREN - HOSTEL NUMBERS 1962-73 AND ESTIMATED NUMBERS OF BOARDERS 1974-84

(Source: Superintendent, W.A. School for Deaf Children) Education Department files.



1.5 In 1967 a group of parents of deaf children formed the Speech and Hearing Centre of W.A. (Inc.). The parents were concerned about the quality of the language programmes in the Education Department schools and decided to start a private school. The initial enrolment of five children increased rapidly. At the beginning of 1968 the State Government made a house at 78 King's Park Road available to the Centre. During the next three years further increases in numbers necessitated the erection of a transportable classroom and the renting of an adjacent house. The increased numbers strained the financial resources of the Centre and in 1970 the Education Department agreed to become responsible for the payment of teachers at the Centre. The Council of the Centre retained responsibility for the provision of buildings, equipment and ancillary staff. From the beginning of the 1972 school year the Speech and Hearing Centre was given the status of a non-Government school in respect of issues of stock, other applicable equipment, grants and subsidies. The Education Department continued to pay the salaries of the teaching staff.

1.6 Prior to the foundation of the Speech and Hearing Centre detailed plans for the partial reorganisation of facilities for the education of children with impaired hearing had been prepared by the Director of Special Services of the Education Department and were approved by the Director-General of Education and accepted by the Minister for Education early in 1966. Children were moved from the old building which had housed the Deaf Kindergarten and Infant School at the Cottesloe Infant School building in the third term of 1966. The old building became the Pre-School Training and Parent Guidance Centre and the Cottesloe Infant School was renamed the Cottesloe Junior Primary School for Deaf Children. In order to make the Infant School suitable for the education of deaf children, structural modifications costing $13,000 were commenced early in 1967 and were completed late in 1968. By 1972 the school enrolment had increased to the extent that the headmistress requested two or three demountable class-

rooms. The request was repeated late in 1972 and resulted in plans for additions and renovations being prepared in 1973. A tender for $249,874 was let early in 1974 and the building was completed by the time the new Co-ordinator of Education of Children with Impaired Hearing, Mr B.J. Fisher, took up his position in August 1974. Following his appointment he prepared a report to the Director of Special Services on proposed developments for the triennium 1975-1977.

1.7 From the time of the formation of the Speech and Hearing Centre administrative co-operation between it and the Education Department varied considerably. During 1970 and 1971 verbal agreement seemed to have been reached that the systems should amalgamate and a new all-age oral school be built at Churchlands by the Education Department. The Council of the Speech and Hearing Centre was to assume responsibility for the provision of residential accommodation for children being educated at the oral school and it was planned that the Board of Management of the W.A. School for Deaf Children would continue to provide accommodation for children being educated as educationally deaf.

1.8 The plan was not implemented, and late in 1971 Education Department representatives approached the Council of the Speech and Hearing Centre and recommended that the Centre should become a Government school, with the Education Department assuming full responsibility for buildings and staff, or it should revert to the status of a private school. Opposition to the proposal led to the formation of an Advisory Committee composed of representatives of the Education Department and the Speech and Hearing Centre under the Chairmanship of Bishop MacDonald. The Committee met early in 1972 and later recommended that the Centre should continue under the existing conditions for the time being. The Minister for Education agreed to the recommendation. The Committee also endorsed a suggestion that the Education Department should create a position of Superintendent of Deaf Education.

The final meeting of the Advisory Committee in April 1972 endorsed a suggestion that the Council of the Speech and Hearing Centre should proceed with plans to erect a new oral school in the Wembley area for which the Education Department would continue to provide staff. Later in the year the Education Department supported the Council of the Speech and Hearing Centre in its application to the local authority for land and in its unsuccessful application to be a beneficiary of Telethon funds in 1973. The Speech and Hearing Centre transferred to the new primary school at the beginning of 1975.

1.9 Reorganisation of the system of education for children with impaired hearing commenced in 1975 with the aim of separating children classified as partially hearing from those classified as educationally deaf. The units for children with impaired hearing at the Claremont, Cottesloe and Bicton Schools were closed, and all primary school children being educated as "partially hearing" by oral methods were transferred to the Cottesloe Junior Primary School for Deaf Children, which in October 1975 was renamed the Cottesloe School for Partially Hearing Children. The W.A. Deaf School at Mosman continued as the school for those children being educated as "educationally deaf". The reorganisation also involved the separation of boarders into "partially hearing" and "educationally deaf" groups. A house was rented at Bentley by the Board of Management of the W.A. Deaf School and the "partially hearing" group was transferred to Bentley, the "educationally deaf" boarders remaining at Mosman. Negotiations have been taking place between the Board of Management and the Education Department in respect of the provision of separate boarding facilities for "partially hearing" boarders when the lease on the house at Bentley expires.

1.10 The reorganisation resulting in the need for separate boarding facilities has compounded the problems associated with falling numbers of boarders at the Mosman School for the Board of Management of the W.A. Deaf School (Figure 1.2). From a high of one hundred and seventeen in 1966 the number has fallen to ten at Mosman with

a further eight "partially hearing" children boarding at Bentley. The decreasing numbers have been attributed by the present Superintendent to three main causes -

"(a) The extension of the Education Department's special bus service to provide transport for suburban children, many of whom would otherwise need to be weekly boarders.

(b) An improved public attitude towards handicapped children and an increasing readiness to accept them as individuals in their own right.

(c) The growing awareness amongst parents that even the best managed hostel and most qualified staff is not an effective substitute for home and family."

(Annual Report of the W.A. School for Deaf Children (Inc.), 1972.)

1.11 The result is that the role of the Board of Management of the W.A. School for Deaf Children has changed. For many years it was responsible for the provision and supervision of residential accommodation for deaf children at its hostel. As most children requiring special education because of hearing impairment boarded the work of the Board was of benefit to the majority of such children. Now only a small proportion of students benefit directly from the Board of Management's contribution to the provision of boarding accommodation. However the Board is in a position to solicit donations from the public and attract bequests as if it were still responsible for providing accommodation for most hearing impaired students. The Parents and Citizens' Association of Western Australian Deaf Children is not in a comparable position with respect to soliciting donations and attracting bequests because of provisions of the Education Act. The Board of Management of the W.A. School for Deaf Children is aware of the need for re-structuring its function to a new purpose (Annual Reports, 1973, 1974, 1975). The Council for Special Education considers that it may be premature to make a specific recommendation regarding the possible future role the Board of Management could adopt. Members of Council are of the opinion that the valuable part which the Board of Management has played in the welfare and education of deaf children in this State should continue to benefit all children requiring special education because of hearing impairment and to complement the work of the Parents and Citizens' Association of Western Australian Deaf Children.

CHAPTER TWO

AUDITORY IMPAIRMENT AND ITS CLASSIFICATIONS

2.1 There are many classifications of auditory impairments, each of which serves a different purpose. Myklebust (1964, p.3) has stated that the educational and social implications of auditory impairment vary from person to person and from one circumstance to another, so that rigorous definition is difficult. For some children auditory impairment can result in severe educational and social retardation, but for other children the same sensory impairment may result in a minimal loss of competence.

2.2 It is difficult for the lay person to interpret auditory impairment. The majority of hearing persons think of degree of deafness in terms of the ability to hear progressively louder sounds. A classification consistent with this notion is the degree of hearing impairment as measured by pure-tone audiometry. The pure-tone audiometer is an instrument which can deliver a range of sound stimuli of known intensity (the amplitude of the sound-wave, or loudness) and frequency (the length of the waves) to each ear via head-phones. The results are plotted on a chart, the pure-tone audiogram. The unit of measure of intensity is expressed by the decibel (dB). The method of describing hearing ability by taking the arithmetic mean of the decibel levels at three frequencies is sometimes unsatisfactory because the same average value may be obtained from quite different audiograms. Systems are now being proposed which will allow classification of an audiogram by frequency loss pattern as well as average value (Ahlström, 1971, p.325). Thresholds up to 20-25 dB

are considered normal and would not cause significant difficulty with faint speech nor significantly affect the communication processes under most circumstances. Classifications of hearing impairment based on audiometric testing vary slightly in cut-off points for classes and terminology. Two such classifications together with sound pressure levels of common environmental noises in reference to hearing thresnolds are shown in Appendix One. Silverman (1971) has divided hearing loss into five classes and alternate terminology is shown in parentheses.

Class I: A mild (slight) hearing loss refers to a loss ranging between 21dB and 40dB. With best hearing in this range a child will experience difficulty hearing faint or distant speech. His own speech patterns may be unremarkable or reflect only minor distortions and omissions.

Class II: A moderate (mild) hearing loss falls in the range of 41dB and 55dB, and when it is bi-lateral it significantly impairs the child's ability to follow conversation of normal intensity levels at a distance of more than 1-2m. from the speaker. This child's speech usually has noticeable articulation errors, particularly in consonant sounds such as Sue, shoe and chew.

Class III: A moderately severe (marked) loss means the loss falls in the range of 56dB and 70dB. A child who hears only this well cannot follow conversation unless it is loud and very close. He will not function in group work and will probably have limited vocabulary and language skills. His speech patterns will be poor with many articulation errors and he may have a swallowed or hollow vocal quality. If a conductive loss is diagnosed he generally wears a hearing aid with successful results.

Class IV: A severe (severe) hearing loss lies between 71dB and 90dB. With bi-lateral impairment of this type the child cannot follow normal conversation, although he may hear single words at a distance of about 0.35m. and he may hear some loud environmental noises. Even with hearing aids the youngster will often not hear speech clearly and usually has difficulty following simple spoken sentences. His own speech production is often unintelligible, with an abnormal voice quality, and he will require specialised help to produce recognisable speech.

Class V: A profound (extreme) hearing loss exists when thresholds lie above 90dB. A child with this degree of bi-lateral loss may react on occasions to very intense sound. He cannot rely on hearing for communication, even with hearing aids, and is usually trained by specialists. Most often he employes manual (sign language or finger-speiling) or total communication (signing and finger-spelling while talking) techniques. Some authorities suggest oral training, but the results of this type of training with the profoundly deaf generally lead to very little improvement in speech. His speech, if any, may be unintelligible, although he may produce some recognisable words with training.

2.3 In medical practice deafness is encountered either as presumed present at birth or as acquired after birth (Mawson, 1963, p.120). Classification is then made on the basis of time of onset. The terms used in this classification are congenital (present at birth) or acquired (adventitious) hearing impairment. The distinction between congenital and acquired deafness is useful in some circumstances. The former may be defined as a more or less pronounced loss of hearing present at birth, leading to impaired speech and transmitted by hereditary influences or acquired by chemical, physical or mechanical influences in the pre-natal period (Mawson, 1967, p.121). By this definition, however, certain forms of hereditary and infection-caused deafness, not manifest at birth, but developing later in life, are excluded from the term congenital. This group of causes contains both conductive and perceptive hearing losses. The two best known examples of this delayed impairment are caused by otosclerosis and congenital syphilis. Because of this difficulty with the terms congenital and acquired, some authors prefer to consider causes of deafness under three headings according to whether they are pre-natal, peri-natal or post-natal. Cases of pre-natal and peri-natal deafness, with the exception of otosclerosis and branchial malformation, are exclusively perceptive in clinical type; classification based on these types is not always helpful. The causes of post-natal

deafness, on the other hand, may conveniently be grouped under the headings: Conductive, Perceptive and Psychogenic, such a classification indicating causes successively lying in the external ear, the middle ear, the inner ear, the central connecting tracts and the cerebral cortex. An example of this type of classification is shown in Appendix Two.

2.4 A third classification can be derived from data on the physical origin (site of anomaly or lesion). This classification divides impairment into three types:

i. Conductive
ii. Sensori-neural
iii. Central auditory

It is possible for mixtures of the three types to occur (Murphy, 1969, p.208). For example, a conductive impairment may develop as an overlay in a person with sensori-neural deafness.

i. Conductive Impairment refers to impairment in the mechanical transmission of sound vibrations through the external and middle ear. Causes may be as simple as wax in the ear or as complex as failure of the external meatus to canalize (Mawson, 1967, p.123). Congenital conductive deafness is exceedingly rare, and occurs in probably less than 1/100,000 live births (Clements, 1974, p.39). Advances in surgical techniques have resulted in the present situation that most cases of conductive hearing loss can be corrected or ameliorated (Clements, 1974, p.39; Murphy, 1969; p.208).

ii. Sensori-neural Impairment occurs as a result of damage to or malformation of the inner ear or neural pathways leading to the primary auditory cortex. Surgical help for this type of deafness is very limited. Some help may be given by the fitting of a hearing aid but unlike the correction of many visual anomalies by the use of spectacles, the hearing aids presently available cannot correct sensori-neural deafness. Hearing aids only amplify sound and the results of their use is analogous to the results of using magnifying glasses to correct all visual anomalies. If the hearing impairment is of a type in which sound is received in a very distorted way, a hearing aid will only increase the distortion.

iii. Auditory Perceptual (Central) Disturbances. Disorders of the central auditory nervous system resulting in disturbances of language and learning processes give rise to very complex disabilities which are difficult to diagnose and for which it is difficult to provide educational treatment. McConnell (1973, p.361) has stated that detailed information on the nature and manifestation of such disorders is very sparse and "represents a whole area for which there is a great knowledge gap".

2.5 Each of the above classifications is useful for the purpose for which it was devised but a further classification, also based on time of onset, is the one which has the greatest significance for the education of children with impaired hearing. This divides hearing impairment into two classes: pre and post-lingual hearing impairment. For the teacher there are fundamental differences between the task of educating a child who has acquired language before becoming deaf, and that of educating a child who has been deprived of language stimulation from birth. Dale (1976, p.54) suggests that the major shift from "oral" to "total communication" and "neo-manual" methods which is taking place in America and Russia reflects changes in the numbers of pre-lingually and post-lingually deaf school children. Historically, acquired deafness has been very common but advances in nutrition, hygiene and medical care have made it less common so that now the majority of children in schools for the deaf in developed countries have a pre-lingual impairment (Dale, 1976, p.52). This change in the characteristic pattern of impairment has taken place in Western Australia and has had important methodological implications.

CHAPTER THREE

EDUCATIONAL CHARACTERISTICS OF CHILDREN WITH IMPAIRED HEARING AND METHODS USED IN THEIR EDUCATION

3.1 Cognitive, motor and social abilities of the deaf and hearing impaired are as variable as they are amongst hearing children. Factors which are known to influence the educational attainment of hearing children also influence the education of hearing impaired children and include home background, parental support, intelligence, motivation, early pre-school training, and the quality of teaching. The level of hearing impairment, though the critically important factor for the hearing impaired, is only one of the several biological and environmental factors affecting the educational outcomes of these children.

3.2 Because intelligence tests which were originally developed for use with hearing children were difficult to administer to hearing impaired children and only tapped intellectual skills by verbal means, it was believed for many years that the intelligence of deaf children was below average. The subsequent development of performance tests which required non-verbal responses and depended very little on language and schooling opened another avenue for exploring the cognitive abilities of language deficient children. More recent research has indicated that the non-verbal intellectual abilities of the hearing impaired are within the normal range and vary as with normal children. The multiply handicapped deaf, are however, more likely to be of below average intellectual level. The range of competencies on I.Q. tests for hearing impaired subjects with different degrees of handicap is indicated in Table 3.1.

TABLE 3.1: INTELLIGENCE QUOTIENT DATA ON 29,113 HEARING IMPAIRED CHILDREN REPORTED IN THE 1969-1970 ANNUAL SURVEY OF HEARING IMPAIRED CHILDREN AND YOUTH CONDUCTED BY GALLAUDET COLLEGE, WASHINGTON, D.C.

Group	N	Mean Non-Verbal I.Q.
Hearing impaired with no other handicap	19,698	100.38
Hearing impaired and emotional or behavioural disability	2,068	95.53
Hearing impaired and emotional or behavioural disability with other handicapping condition	1,019	83.00
Hearing impaired and other handicapping condition, but no emotional or behavioural disability	6,328	85.43
Total	29,113	

(Adapted from Dunn, 1973, Table 7.5)

3.3 The moderate to high correlation between mental age and educational attainment demonstrated for hearing students is to a large extent dependent on the verbal component of intelligence tests. The reported correlation coefficients between these variables for normal hearing groups should not be used to make judgements about the expected competencies of deaf pupils in the language arts subjects because the causes of the educational retardation of hearing impaired children in school subjects dependent on language must be linked primarily to the defective audition of hearing impaired students. The very inhibiting nature of hearing loss for all written and oral communication makes it most undesirable to consider the "gap" between mental age and educational attainment as the primary criterion of successful schooling for the hearing impaired. Educational programmes for children with impaired hearing should be judged on the degree to which they meet more important academic, social, emotional, physical and vocational criteria. Table 3.2 illustrates the differences in attainment between groups of students with impaired hearing and normal children in the language arts subjects.

TABLE 3.2: WEIGHTED MEAN GRADED EQUIVALENTS ATTAINED FROM STANFORD ACHIEVEMENT TESTS ADMINISTERED IN ANNUAL SURVEY OF HEARING IMPAIRED CHILDREN AND YOUTH, 1970-1971

Subject	N	Mean Grade Equivalent	Range of Means by Test Battery	Grade Expectation for Normal Children
10 Year Old Students				
Arithmetic Computation	1277	2.5	1.8-5.1	5
Total Arithmetic	1269	2.4	1.8-6.2	5
Paragraph Meaning	1290	2.2	1.8-6.4	5
Total Reading	1277	2.3	1.9-6.4	5
14 Year Old Students				
Science	554	4.7	4.2-8.0	9
Social Studies	442	5.3	4.9-8.0	9
Spelling	532	6.3	5.6-9.3	9
Arithmetic Computation	1560	4.5	1.9-7.9	9
Total Arithmetic	1550	4.0	1.9-8.2	9
Paragraph Meaning	1566	3.2	1.8-7.9	9
Total Reading	1566	3.1	2.0-7.9	9
18 Year Old Students				
Science	629	5.3	4.2-7.5	13
Social Studies	629	5.9	5.0-7.7	13
Spelling	973	6.4	6.2-9.6	13
Arithmetic Computation	973	6.4	1.9-9.2	13
Total Arithmetic	972	5.6	1.9-8.6	13
Paragraph Meaning	974	4.3	1.9-7.4	13
Total	974	4.3	2.0-7.4	13

(Adapted from Dunn, 1973, Table 7.4)

3.4 The submission of the Parents and Citizens' Association of Western Australian Deaf Children stated that "it is our impression that Western Australian Deaf Children are 'underachieving' by world standards". Data obtained in a recent survey of children attending State schools for children with impaired hearing in Western Australia by the Co-ordinator of Education of Children with Impaired Hearing (Fisher, 1976) show that averages obtained here do not differ markedly from those obtained overseas and are comparable with the American averages shown in Table 3.2. and the English averages shown in Table 3.3.

TABLE 3.3: MEAN READING AGES OF 689 DEAF PUPILS IN 23 SCHOOLS FOR THE DEAF IN ENGLAND USING THE SOUTHGATE GROUP READING TEST 2 (FORM A)

Chronological Age	Reading Age
9-9.11	7.5
10-10.11	7.8
11-11.11	7.5
12-12.11	7.7
12-13.11	7.7
14-14.11	7.9
15-15.11	7.8
16-16.11	7.11
17-17.11	7.11

Source: Bates, 1973.

It is also appropriate to make reference to figures quoted in the recently published report Education of Hearing Impaired Children in South Australia. The data in this report indicate levels of educational retardation in South Australia comparable to those obtained in Western Australia. The comments which follow are representative judgements of overseas teachers on the language and reading competence of deaf children.

"The reading attainments of most deaf children, as shown by research in Britain, U.S.A., and other overseas countries remain very low (Redgate, Great Britain, 1971, p.617)."

"In England, as in most countries, we are deeply concerned about the quality of language that our profoundly deaf pupils are able to obtain before the time that they leave school at 16 (Johnson, Great Britain, 1971, p.346)."

"It is a well-known fact that many deaf children are retarded in their reading and educational skills (Miller, U.S.A., 1971, p.446)."

"Because of...lack of prepardness for college-level work, Galladuet provides a one-year preparatory program to strengthen academic skills and to provide a smooth transition to college study and campus life (Hicks, U.S.A., 1971, p.446)."

"A survey of the results of various investigations designed to evaluate the effects of our efforts to promote linguistic skills does not give very promising results...changes in reading comprehension during school years are extremely small among the hard-of-hearing compared with the yearly changes in normal children (Ahlström, Sweden, 1971, p.323)."

Averages, and general comments such as those quoted, tend to obscure the individual case, be it school or child. There are few schools overseas which report group results better than those obtained to date in Western Australia and there are schools which report worse results. Similarly, within any school some children will make good progress and some will develop slowly. Judgements about standards are often hard to interpret because reported figures do not always indicate the number of children with multiple handicaps enrolled in schools for children with impaired hearing.

3.6 The educational prognosis for deaf children is not good in the language arts and reading and the average American deaf adult has a reading ability at about the fourth grade level (Dale, 1976, p.52). However, the existence in the United States of the educational programmes at Gallaudet College, at which half of the faculty are deaf, and of schools in the United States and other countries which prepare deaf students for universities, shows that some deaf students are capable of achieving high educational and vocational levels. The existence of institutions such as Gallaudet College has been given by Norwood (1971, p.659) as the reason why some deaf persons in the United States achieve such high levels of competency. In other countries a deaf person can remain at school up to the age of 21 years and other opportunities have become available for post-secondary and higher education. Norwood, however, considers the most important reason to be that there are many deaf people in America who have achieved professional status, including deaf educators of the deaf, and they provide models with which the young deaf child can identify. Even so, relative to the total deaf population, the number of academically successful deaf adults is small. It would do great harm to the deaf programme in Western Australia if the total programme were to be adjusted to cater for the needs of those few deaf children with high level cognitive abilities. Once that has been said, it must be pointed out that the gifted deaf pupil should be given every opportunity to excel in his or her chosen field.

3.6 Teachers of the deaf are continually striving to improve their teaching of basic reading and number skills, but at present it is not possible to recommend procedures that would cause marked changes in educational attainments for all hearing impaired children. To expect a sudden improvement to result from any organisational or methodological change is unrealistic and could have the effect of placing undue pressure on teachers and children to improve their efficiency beyond levels of natural competence.

Council does not want to give an impression of pessimism about the educational future of the hearing impaired. In fact, our view is of a different kind. We believe there is ample evidence to support the view that the non-verbal problem solving capacity of the learning impaired is at least the equal of normal children. By adolescence pupils with impaired hearing are capable of developing abstract and formal thought and should be capable of making mature and competent decisions about their future role in society. The continuance of the present educational programmes should enable children with impaired hearing to become highly proficient students. Such proficiencies will develop if there is sufficient stress on adequate communication skills and the growth of problem solving abilities in other areas. We also believe that it is unfortunate that individuals outside deaf education have misunderstood the handicapping effects of profound hearing loss, and have come to expect too much from pupils with impaired hearing in the language arts subjects.

Methods

3.7 Only a brief outline can be given of the cases for and against each method. On each side the final goal is to enable the deaf child to communicate to the best of his ability with those in the community in which he lives. The main case for the manual and combined methods is that teaching articulate language is a long labourious process often ending in failure for both pupil and teacher and that time taken up in teaching speech could be better spent on other aspects of the curriculum and in providing the pupil with alternative communication skills. (Wright, 1967, p.156).

The case made against the manual methods is that sign language and finger spelling mark the user off from the rest of the community and hinder the pupil from integrating with the hearing community because he employs a different, and to most people an incomprehensible mode of communication. (Wright, 1967, p.192).

The main case for the "pure oral" method is that it is the most natural mode of communication for humans. It is stated that to teach the child to communicate orally is to help him become more human. (John and Howarth, 1973, p.103). Exponents of this method claim children do become more proficient at the natural language of hearing children, and parents normally give support to such approaches because they wish to see their children adapt as normally as possible to family and social life.

The case against the "pure oral" system rests on the lack of success of students with profound hearing impairment in oral communication and the isolation of the deaf person who has been educated by this means. It is argued that many of the congenitally deaf never learn to speak well enough to be easily intelligible to the average hearing person. The speech of a substantial proportion of children leaving schools for the deaf is incomprehensible to all but their parents and teachers. (The Health of the School Children, D.E.S., 1964; Ahlström, 1971, p.323). Many also have poor lip-reading skills and thus they find it difficult to integrate with the hearing community. It is contended that often the hearing impaired have spent so much time (more or less vainly) learning an oral language that they may have fewer communication skills and be less well educated generally than if they had been taught by the manual or combined methods.

3.8 The debate has continued because each side can point to its successes and both sides have failures which can be used as a basis for arguments against particular methods. John and Howarth (1973, p.106) have stated that:

> "the difficulty which both supporters and opponents of oral teaching have equally to recognise is the paucity of valid research in which comparisons are made between the success of different modes of communication used in the education of deaf children. Comparisons of teaching media are almost

> impossible to make since there are so few schools in which oral communication inside and outside the classroom is consistently maintained."

In addition, it is extremely difficult to find groups that can be matched on the basis of pre-school language experience.

3.9 Few children are so deaf that they are unable to respond to any sound at all and the development of modern hearing aids has meant that the range of sounds which can be heard by the profoundly deaf can be increased. Rather than allowing children to develop the habit of "tuning out" from sounds which may seem meaningless there is now recognition that children can be taught to use what hearing they do have as efficiently as possible. The methodological utilisation of residual hearing is termed "auditory training" (Wedenberg, 1971, p. 224) and is used by adherents of both "oral" and "combined" methods, but was developed primarily within the context of "pure oral" methodology.

3.10 An impression gained from the literature on this issue is that it is hearing parents of deaf children and teachers of the deaf who are most committed to "pure oral" teaching. Despite this emphasis on auditory training for the profoundly deaf there is little research evidence to indicate that such instruction has any marked effect on communication skills. Parents wanting their child to respond as normally as possible usually support oral programmes even though these programmes may not always prove as helpful to the child as had been anticipated. The quotation cited in the previous section mentions the problems of maintaining a "pure oral" environment. Children have a basic need to communicate and if their speech is inadequate, natural gesture, mime and idiosyncratic signing are used in defiance of teacher edict (Reich, 1971, p.205; Report of the W.A. School for Deaf Children (Inc.) 1975; Wright, 1967). It also seems to be the case that many profoundly deaf orally educated adults who are able to adjust even at a professional

level within the hearing community find the physical and mental strain so great when relying on oral communication that they are unable to relax completely in the hearing community and find real relaxation only possible in the company of other deaf persons using manual communication (Dalladay, 1973, p.204).

CHAPTER FOUR

EDUCATIONAL FACILITIES IN WESTERN AUSTRALIA FOR CHILDREN WITH IMPAIRED HEARING

4.1 In July 1976 two hundred and forty-nine children were attending special educational facilities for children with impaired hearing in Perth. Numbers at the school are shown in Table 4.1.

TABLE 4.1: NUMBERS OF PUPILS ATTENDING SCHOOLS FOR CHILDREN WITH IMPAIRED HEARING IN WESTERN AUSTRALIA

School	Students	
	Full-Time	Part-Time
Cottesloe Kindergarten	24	10
Cottesloe Primary School for the Partially Hearing	53	
Mosman School for the Deaf:		
Primary	33	
Secondary	26	
Swanbourne Senior High School Unit	14	
Balga Special School Unit	6	
The Speech and Hearing Centre of W.A: Primary	41	1
Kindergarten	12	
Hearing students at Kindergarten = 29		
The State Parent Guidance Centre	24 cases weekly 5 cases fortnightly	

In addition to the children attending the special schools ninety-four children with impaired hearing who attend normal or other special schools are helped periodically by a visiting teacher of the deaf. One hundred and thirty-one partially hearing children known to the State Assessment Centre are attending normal schools without visiting teacher aid, but contact with the State Assessment Centre is maintained by means of report or interview.

4.2 A scheme to co-ordinate and rationalise facilities for school-age children with impaired hearing has been suggested to the Education Department and the Board of Management of the Speech and Hearing Centre by the Co-ordinator of Education of Children with Impaired Hearing. The scheme has been prepared with the aim of ensuring that children at all stages are provided with equal opportunities and facilities. The stages of the scheme have been planned to provide children with special educational assistance graded to their educational needs. They range from opportunity for complete integration within normal schools with occasional review by the State Educational Service for Children with Impaired Hearing, through to intensive special educational programmes for the most handicapped children with impaired hearing.

4.3 The reorganisation carried out within the State system since the arrival of the Co-ordinator has been directed at achieving the organisational structure to ensure a comprehensive service for all children with impaired hearing. In the context of the scheme the words "deaf" and "partially hearing" are defined in terms of educational need following the British usage as defined by the Ministry for Education (D.E.S. Circular 10/62).

> "(a) deaf pupils, that is to say, pupils with impaired hearing who require education by methods suitable for pupils with little or no naturally acquired speech or language;
>
> (b) partially hearing pupils, that is to say, pupils with impaired hearing whose development of speech and language, even if retarded, is following a normal pattern, and who require for their education special arrangements or facilities, though not necessarily all the educational methods used for deaf pupils."

It should be noted that classifications made according to educational need do not necessarily correspond with hearing impairment classifications described in Chapter 2. Thus a child who would be classified as profoundly deaf using audiometric criteria could be classified as partially hearing on educational criteria and a child classified as having a moderately servere hearing loss by audiometric criteria could be classified as educationally deaf on educational criteria.

4.4 Levels of special education to be provided in Western Australia

Level One: Students with impaired hearing would be placed in local primary or secondary classes with periodic review of educational progress. The State Educational Assessment and Parent Guidance Centre for Children with Impaired Hearing (The State Centre) would assess them on a once-a-year or once-a-term basis.

Level Two: Students with impaired hearing would be placed in normal classes or in special schools or classes designated for educational handicaps other than hearing impairment with weekly visits from a teacher of the deaf based at the State Centre.

Levels One and Two are already in operation. Teachers of the deaf from the State Centre visit twenty-nine Government primary schools, nine Government secondary schools, fifteen non-Government primary schools and one non-Government secondary school on a regular basis, depending on the needs of the students.

Level Three: Students with impaired hearing would be placed in a special school or class for the educationally partially hearing. Such children are seen to require arrangements or facilities beyond those in Levels One and Two. Level Three education is at present provided at the Cottesloe School for the Partially Hearing and at Special Classes at Swanbourne Senior High School.

Level Four: Educationally deaf students would be placed in a special school or special classes which follow an oral/aural (i.e. natural language) programme. In this context the term "oral" does not refer to the speech abilities of the students but to the "oral" methods by which the students are taught. At present there is no provision for all-age oral schooling. The Speech and Hearing Centre provides an oral pre-primary and primary programme supplemented by Cued Speech for educationally deaf children. Cued Speech is a system that uses hand shapes and positions that relate to the phonetic elements of spoken words and serves to make clear those lip patterns that are ambiguous or those speech elements that are not visible. Upon leaving the Speech and Hearing Centre the older students continue their education either under Level One or Level Two conditions or change to the combined method tuition provided in Level Five. The position

of the Speech and Hearing Centre in relation to the State system is considered in Chapter Five.

Planning has commenced on the development of all-age oral schooling within the State system for educationally deaf students. Initially Level Four provision will commence with seven students in a special class at Ardross Primary School at the beginning of third term 1976 and will be progressively enlarged. It is envisaged that students attending the Ardross Unit will proceed to an oral class to be established at Applecross Senior High School, thus providing a full range of special education for the educationally partially hearing at Cottesloe and Swanbourne, for the educationally deaf being educated by oral methods at Ardross and Applecross and for the educationally deaf being educated by combined methods at the Mosman School for Deaf Children.

Level Five: Students with impaired hearing would be placed in a special school for the educationally deaf following a combined method in which an oral/aural programme is supplemented by finger-spelling or by a grammatical signing system.

This level is provided at the Mosman Park School for Deaf Children, which is an all-age school.

Level Six: Students with impaired hearing would be placed in a special class or unit for educationally deaf students with additional handicaps of mental and physical development. An eclectic method, in which oral/aural, cued, finger-spelling, signing or naturally gestured methods of communication are utilised, would be used as appropriate to the students' needs. It is considered that Level Six provision should be made in a location separate from that of Levels Four and Five because of the possible incompatability of verbal and non-verbal methods of communication within one school for the deaf, and in Western Australia it is thought that Level Six provision is likely to consist of classes within other types of special schools, e.g. schools for the mentally retarded. A unit for mentally retarded students with impaired hearing commenced at Balga Special School at the beginning of Second Term 1976 with a visiting teacher of the deaf in attendance for half of each day.

4.5 Council members are of the opinion that the development of a centrally based and systematically co-ordinated scheme such as that proposed by the Co-ordinator would provide a sound basis for the development of the education of students with impaired hearing in this State. Council supports the concept of the centralisation of the scheme on the State Assessment Centre which would allow maximum flexibility in placement of students at all stages of their educational career.

RECOMMENDATION 1: The organisational plan proposed by the Education Department directed at achieving a comprehensive educational service for all children with impaired hearing should be implemented.

4.6 At present the State Educational and Parent Guidance Centre for Children with Impaired Hearing is situated on the campus of the Cottesloe School for Partially Hearing Children and the State Kindergarten for Children with Impaired Hearing. Council members consider that the location is unsatisfactory as it could lead to the identification of the Assessment Centre with one particular school and method. An assessment centre should be seen to be central and organised to serve all schools equally.

RECOMMENDATION 2: The State Educational Assessment and Guidance Centre for Children with Impaired Hearing should be relocated in a central metropolitan situation.

4.7 Most of the Western Australian schools and classes for children with impaired hearing are located in close proximity to schools with hearing children. At the primary level the Cottesloe School for Partially Hearing Children is on a site shared with the Cottesloe Primary School, the Speech and Hearing Centre adjoins Wandarra State Primary School and the Ardross Oral Unit is located at Ardross Primary School. The secondary classes for partially hearing students are situated at the Swanbourne Senior High School. Although no primary or secondary

school is immediately adjacent to the Mosman School for the Deaf a system of regular interchange of students from that school and the Ananda Marga School has been organised. Council considers that too great a segregation of children with impaired hearing from hearing children for educational purposes is undesirable and believes that social and educational programmes which encourage contact with normal schools should be encouraged wherever possible.

RECOMMENDATION 3: <u>All schools for children with impaired hearing should be located in close proximity to other educational facilities to ensure opportunity for the greatest possible integration with hearing children.</u>

4.8 Although the Council supports the organisational plan proposed for the education of children with impaired hearing within the State Education System in principle, it recognises that the scheme does overlap on the administration of other areas of handicap. The most suitable educational provision for children with multiple handicaps is a problem which has been dealt with on an ad hoc basis in most countries. Advances in medical, diagnostic and assessment procedures appear to be resulting in a higher incidence of children with multiple handicaps in relation to those thought to have a single handicap. It seems unlikely that the experience of Western Australia will be different from that of other countries. We have made no investigation of the problems of placement of children with multiple handicaps but consider that the formation of a unit at Balga School for Children who are both mentally retarded and have impaired hearing suggests that it is appropriate that the placement of children with multiple handicaps should be comprehensively examined so that the development of units for the education of these children may proceed on a planned rather than an ad hoc basis. In particular, Council recognises that parents will want more guidance than at present exists in respect to the education of these children.

RECOMMENDATION 4: A set of guidelines should be formulated on the problems associated with the education of hearing impaired children with multiple handicaps.

4.9 Special educational facilities do not exist outside the metropolitan area for country children with impaired hearing. The educational progress of country children attending local schools is monitored by means of reports sent between the schools and the State Assessment Centre and by interviews at the State Assessment Centre. Sometimes interviews are difficult to arrange, but where possible children are seen once a term or once a year. Some country visits have been made by staff from the State Assessment Centre and regular visits each term to certain country areas are proposed for the future. The Board of Management of the W.A. Deaf School makes available a small flat free of charge for the use of country parents visiting Perth for the assessment of children with impaired hearing, but the cost of travel to Perth for assessment and guidance is an expense not all parents from remote areas can afford. Mobile assessment vans have been used overseas, but it has been estimated that even partial duplication of the equipment and facilities available in Perth in mobile form and the trained staff necessary to operate a mobile clinic would cost many thousands of dollars per year. Approximately twenty parents from remote areas find it difficult to meet the expense of regular visits to Perth. Until the population increases enough to warrant the establishment of facilities outside the Perth metropolitan area, a fare subsidy would be the most economical means of achieving the objective of a comprehensive service for all children with impaired hearing in Western Australia.

4.10 However, it is not only the parents of children from remote areas who may benefit from counselling and guidance. Teachers in remote schools who have children with impaired hearing in their classes must at present rely on written contact with the State Assessment Centre. Council members believe that although additional qualified staff would need to be employed, the benefits accruing to parents, children and teachers from country visits by staff from the State Assessment Centre would be such that additional appointments for this purpose should be made.

RECOMMENDATION 5: Suitable staff should be employed to provide counselling services to parents and teachers in country areas.

RECOMMENDATION 6: When children from remote areas are required to visit Perth for specialist assessment and guidance which cannot be provided in their area a travelling allowance should be made available to their parents.

4.11 The length of time which metropolitan children attending the Sir James Mitchell School must spend travelling to and from school was discussed in our report on the "Education of Cerebral Palsied Children in Western Australia (1975)". A similar problem exists for the children attending State schools for children with impaired hearing. The small number of children attending State schools for children with impaired hearing does not yet warrant the development of regional schools. Four alternative provisions can be considered, each of which has some advantages and some disadvantages.

i. They may board at the Mosman School for the Deaf, the Bentley Hostel for Partially Hearing Children or board privately near the schools. Most parents prefer to have daily contact with their children if at all possible and many consider that even quite long bus travel each day is preferable to weekly boarding.

ii. They may be transported to school by their parents. For a variety of reasons many parents are unable to drive their children to and from school each day. Some parents are able to share driving, but the further away from the school the parents live the less likelihood there is that another child with impaired hearing will live in the district. Some parents are willing and able to drive their children long distances as an alternative to boarding. The longest journey by parent transport made by a child with impaired hearing at present is 55 km. each way, a travelling time of two hours thirty minutes daily.

iii. They may use public transport. Fifteen children attending the Mosman and Cottesloe Schools use public transport. For many children the use of public transport would necessitate one or two changes en route so that, apart from missed connections, the total travelling time could equal or exceed that of a special school bus.

iv. They may travel on the special school buses provided free by the Education Department. The buses in which children with impaired hearing travel to the Mosman and Cottesloe Schools also transport children to the Lady Lawley and Yaringa Schools for orthopaedically handicapped children which are in the same area. The earliest pick-up made by one of the special buses servicing this area is 7.20 a.m., and the latest is 8.40 a.m. Earlier in 1976 the first pick-up was made at 7.00 a.m., but the provision of an extra bus has made it possible to commence later. Nine special buses service the schools in the Cottesloe area.

4.12 Council is of the view that young children should not have to spend in excess of two hours per day in travel since it places too great a physical strain on them. Alternatives to the present arrangements would be the decentralisation of facilities for young children with impaired hearing, and the use of taxis to collect children from outlying areas and deliver them to more accessible pick-up points in order to shorten travelling time. Council also considers that education in the use of public transport should have a place in the social education of handicapped children and that it is possible that formal training might make it possible for more children to use public transport to attend the schools for children with impaired hearing.

RECOMMENDATION 7: <u>Future planning should emphasise the development of regional centres for the education of children with impaired hearing</u>.

RECOMMENDATION 8: Alternative forms of transport should be used where possible to convey children living in outlying areas to central bus terminals.

RECOMMENDATION 9: Formal training in the use of public transport should be given to children with impaired hearing considered capable of achieving independence in travel.

4.13 The provision of facilities for the education of children with impaired hearing beyond elementary level is less than adequate. The physical provision for the secondary education of students with impaired hearing is sub-standard. Although the students at the Swanbourne unit for Partially Hearing Children have access to the library and science facilities of the Senior High School, the classroom used by the students is well below acceptable standards. We understand that funds have been allocated to upgrade the Swanbourne unit and urge that this work be given a very high priority. The present approach to the education of children with impaired hearing is demonstrated at the Mosman School for the Deaf where the manual arts facilities are excellent. For the older children at the school who are following the Achievement Certificate curriculum the science facilities are inadequate.

RECOMMENDATION 10: The secondary school facilities available to children with impaired hearing should be comparable with those provided for hearing children and action should be taken by the Education Department to upgrade the facilities at the Swanbourne unit and the Mosman School for the Deaf.

4.14 In Western Australian Education Department primary schools for children with impaired hearing the normal curriculum is used as a guide and adapted to a greater or lesser extent to fit the needs of the individual child. The Council considers that this practice is preferable to that followed by some overseas countries which

design special curricula to be followed by all children with a particular handicap. Although the idea of a flexible curriculum is applied in the earlier years of schooling, in the later years the requirements of other bodies such as the Board of Secondary Education, the Apprenticeship Board and the Technical Division, together with an expectation that children should leave school at the age of 16-17 years regardless of the level of education reached has meant that some children with impaired hearing have been precluded from reaching their potential achievement level. The Board of Secondary Education has recently recognised the problem and since 1975 has allowed students at the Mosman School for the Deaf an extra year in which to complete the Achievement Certificate. The extra year has resulted in a rise from Basic to Intermediate achievement levels for some students.

RECOMMENDATION 11: The curriculum for students with impaired hearing at upper and post-secondary levels should be modified to take account of their differing learning rates.

RECOMMENDATION 12: The Education Department should make provision to extend the secondary education of students with impaired hearing to the age of eighteen years.

4.15 The very small size of the deaf population in Western Australia makes it statistically unlikely that more than an occasional child would be able to pursue higher education. Nevertheless we consider that ways should be found to provide assistance for some form of technical or higher education for some children. At present we do not consider that enough educational help is provided for children with impaired hearing, once they have left school. Diligent efforts have been made in the past by the Principals of the Deaf School,

Education Department Guidance Branch Officers, the Commonwealth Employment Service personnel and the Adult Deaf Society to widen vocational opportunities for children with impaired hearing. Their efforts have succeeded as Table 3.4 illustrates, showing a marked move from the pensioner and unskilled categories to semi-skilled and skilled categories.

TABLE 4.2: OCCUPATIONAL LEVELS OBTAINED FOR W.A. DEAF SCHOOL LEAVERS BORN 1940-49 AND 1951-55

Skill Category	Born 1940-41	Born 1951-57
1. Tertiary/professional and semi-professional	0	1
2. Highly skilled	0	1
3. Skilled (i.e. recognised trades)	8	26
4. Moderately skilled and semi-skilled	6	18
5. Unskilled	29	17
6. Unemployed-pensioner, housewife	30*	7
7. No information	21	3
Total	94	73

*Includes 21 females, mostly housewives. Source: Baker, 1974.

This result would not have been possible without the co-operation of the Technical Education Division but programmes have sometimes run into difficulties because of communication problems and the verbal and theoretical content of the technical education studies. The Principal of the Mosman Deaf School and the Superintendent of the Adult Deaf Society give help to technical students but we consider that more Education Department help should be available. The lecturers for the spray-painting course at the Carlisle Technical School and the member of the Apprenticeship Board who have learned sign language in order to assist deaf students undertaking post-secondary courses are to be commended. However the very small number of deaf students in any course in any year make it unrealistic to suggest that all lecturers should be expected to learn a form of manual communication. We believe that the concept of special education

requires education by special methods, and goals could be realised more fully if a trained teacher competent in communication with the deaf were employed as a visiting teacher of the deaf for post-secondary students. Ideally such a teacher should be appointed to the deaf school. Administrative problems might arise because of the proposed separation of the Technical Division from the Education Department but we consider that these should not interfere with a provision which must be made if Western Australia is to keep pace with other countries.

4.16 Although the previous two sections focussed on Technical Education, if secondary facilities for students with impaired hearing are improved as we have recommended, in particular the science facilities at the Mosman School, it may be that some students could proceed to study at one of the colleges of advanced education. Overseas literature indicates that there are possibilities for the employment of the deaf in areas which do not yet seem to have been considered in Western Australia. For example the National Technical Institute for the Deaf in the United States of America, which is associated with Rochester Institute of Technology is confident that deaf students can progress to the technician, semi-professional, para-professional and professional level in science, technology and applied arts (Galloway, 1971, p.434). Again it must be emphasised that the small number of children with impaired hearing in Western Australia does not make it feasible to set up post-secondary courses specifically for them, but with administrative and union co-operation, the appointee to the position recommended below might assist students at the colleges of advanced education and universities.

RECOMMENDATION 13: A trained teacher with the ability to communicate effectively with students with impaired hearing should be appointed to assist those students who are pursuing post-secondary courses.

4.17 We were surprised to learn that many young adults with impaired hearing who have been educated in this State learn sign language at the Adult Deaf Society if they wish to have much social contact outside their immediate family when they leave school. The situation is not unique to Western Australia (Flynn, 1974, p.172) and the place of sign language in the education of the deaf is a vexed question. Opinions range from that of those who do not regard signing as a language (Dale, 1976, p.53) to those who regard signing as the mother tongue of the deaf (Furth, 1973). Linguistic and psychological research into sign language has been very sparse until quite recently. We do not wish to become involved in the controversy, but believe that the Education Department should be able to assess the communication skills of children with impaired hearing prior to their leaving school and provide good signing tuition for those students who have not developed speech to a level that they can be easily understood by persons who do not have special experience with the deaf. We have not been able to discover any valid evidence that signing depresses the level of oral language. It is realised that very many hearing parents entertain the hope that their children with impaired hearing will not sign, and it is also realised that signing is regarded as a "contamination" in orally oriented schools. As Mosman School for the Deaf, however, has been designated as the State School for children with impaired hearing with little or no naturally acquired speech or language, we consider that a thoroughly competent signer with impaired hearing should be available as a model for children in this school.

RECOMMENDATION 14: An adult with impaired hearing, skilled in manual communication, should be appointed to the staff of schools where there are children who rely upon this method of communication.

RECOMMENDATION 15: Tuition in manual communication should be provided in schools for children with impaired hearing whose lip-reading and speech skills in early adolescence are poorly developed.

4.18 Many of the problems and dissatisfactions which have arisen in the past within deaf education in this State appear to members of Council to have been a result of conflicting methodologies and the lack of an adequate communication network among teachers, parents and administrators. Educational programmes in this area have already been influenced by developments in related fields of medicine, psychology and auditory technology. There is evidence that further changes will be necessary to cope with changing patterns of post-secondary education and employment and there is also evidence that some developments have previously been introduced on an ad hoc basis. Council members consider that there is a need to improve information collection and diffusion within the area of education of children with impaired hearing and that this need might best be filled by the formation of an Advisory Panel to advise the Minister for Education on the education of children with impaired hearing. It is considered that the responsibilities of the Panel should be to:

i. Collect information from schools and various sources in the community concerning the efficacy of current programmes and suggestions for the implementation of new programmes.

ii. Act to ensure that curricula for children with impaired hearing are written and circulated to all schools.

iii. Organise expert investigation and/or evaluation of resulting proposals.

iv. Act to ensure that parents and interested members of the community are adequately informed about programmes for the education of children with impaired hearing.

RECOMMENDATION 16: A Panel to advise on the needs of children with impaired hearing should be formed. The membership of the Advisory Panel should consist of -

i. Two educators who are not actively involved in the education of children with impaired hearing but who have a wide knowledge of special and general education. These members should be appointed by the Minister for Education.

ii. Two parents of children with impaired hearing to be appointed by the Minister for Education.

iii. The Co-ordinator of Education of Children with Impaired Hearing.

iv. The principals of the several schools for children with impaired hearing.

It is recommended that the chairperson of the Advisory Panel be elected annually by members of the Panel. The Panel should have powers to co-opt persons with special expertise on a short term basis for specific purposes.

4.19 Western Australia was one of the first States to admit Aboriginal children to special schools for the deaf. Whereas the first Aboriginal student was admitted to the Western Australian Deaf and Dumb Institution in 1897 (Green, 1974, p.147), the incidence of educationally significant hearing impairment in the Aboriginal population of Western Australia is still unknown, as is the incidence of ear disease. What evident there is suggests a much higher incidence of chronic middle ear disease in the school-age Aboriginal population compared with the school age white population. Medically defective middle ears do not always entail defective hearing. A small scale survey conducted by the Co-ordinator of Education of Children with Impaired Hearing at Broome in 1975 revealed a high incidence of hearing loss among the mainly non-white children tested (Fisher and Fisher, 1975). In no case was the impairment severe enough to warrant special schooling. It was considered that the children in the school surveyed represented a high contact group and that in order to be able to gain a true perspective of the incidence

of hearing loss in the Aboriginal school-age population additional surveys of groups in low contact and urban situations should be carried out.

RECOMMENDATION 17: The Education Department should examine the needs of Aboriginal children with impaired hearing and as a first step surveys should be carried out to determine the incidence of hearing impairment in Aboriginal children in Western Australia.

CHAPTER FIVE

THE SPEECH AND HEARING CENTRE

5.1 The Speech and Hearing Centre is unique within the system of the education of children with impaired hearing and within the overall system of special education in Western Australia. As noted in Chapter One an Advisory Committee was formed in 1972 to make recommendations to the Minister for Education regarding continued Government financial support for the Speech and Hearing Centre. That Committee recommended that the Speech and Hearing Centre should continue for the time being under the existing conditions. In effect, the Committee recommended that the Education Department employ and pay the teaching staff and the Council of the Speech and Hearing Centre employ administrative and ancillary staff and provide and maintain buildings and equipment. The Council of the Speech and Hearing Centre was also to provide residential accommodation for country children attending the Centre. Since then the Council of the Speech and Hearing Centre has proceeded with the building of the first stage of a new school at Wembley subsidised by the Commonwealth Government on a two-to-one basis. From 1972 the Centre has been given the status of a non-Government school in respect of issues of stock, other applicable equipment, grants and subsidies. Commonwealth subsidies on a four-to-one basis have been made available for some equipment and subsidies ranging up to 100 per cent have been received from the Commonwealth Government for salaries of some non-teaching staff. Trained pre-school teachers at the Kindergarten of the Speech and Hearing Centre are paid by the Western Australian Pre-School Board. Approximate figures provided by the Managing-Secretary of the Speech and Hearing Centre on the sources of income of the Centre in 1975 are:

State Contribution	$90,000
Commonwealth Contribution	$45,000
Fund Raising	$40,000
Donations and the fees paid by hearing children at the Kindergarten	$20,000

The State contribution is greater than that shown as the cost of clerical time involved in salary payments and Education Department provision for long service leave and superannuation is not included.

5.2 Despite the high proportion of Government funds provided for the running of the Speech and Hearing Centre, unlike other special schools situated in buildings owned by voluntary organisations, Education Department supervision of the teaching programme at the Centre extends only as far as the allocation of staff. The Education Department is also responsible for seeing that the school fulfils the usual requirements for an efficient school under the Education Act. In other special schools housed in non-Education Department buildings the Education Department is responsible for the teaching programme, within the constraints of sometimes inadequate buildings, directly through the principal in the same way that it is responsible for the educational programmes in normal Departmental schools.

5.3 The Council of the Speech and Hearing Centre has been resistant to any suggestion that it rescind any independence, especially in deciding the educational policies of the school. The most recent suggestion, made after the Council of the Speech and Hearing Centre was reconstituted as a Board of Management in February 1976, was that the Centre would provide for Level Four of the scheme outlined in Chapter Four. The proposal was not acceptable to the newly constituted Board of Management. Discussions with the Chairman of the Board of Management, the Managing-Secretary and the Principal of the Speech and Hearing Centre established that the minimum level of independence the Board would consider would be that they retain the right to appoint the Principal.

The educational management is regarded as the domain of the principal, who is invited to attend Board meetings in a consultative, non-voting capacity. An advisory Education Committee has been formed by the Board to assist it on educational matters. It is chaired by a Board member and consists of co-opted persons with some educational expertise. The Chairman of the Board of Management indicated to us that he did not consider that the Board would object in principle to a suggestion that some members of the Education Department should have a regular place on any Committee which had power to recommend and implement educational decisions regarding the Speech and Hearing Centre.

5.4 A proposal made by the Government to the Council of the Speech and Hearing Centre prior to the formation of the Advisory Committee in 1972 was that if the Council wished to conduct the school as a private school the level of Government assistance to the school should be reduced and the Council should fund the school in a manner similar to other Western Australian non-government schools including the charging of fees. It was contended by the Council at that time and was contended during discussions between representatives of the Speech and Hearing Centre and members of the Council for Special Education that as a body recognised under the Charitable Collections Act and the Street Collections (Regulations) Act the Board of Management was precluded from charging fees. Legal opinion given to the Education Department and the Council for Special Education is that nothing in either the previous or present Constitution nor the relevant Acts precludes the charging of fees. The words "charitable purpose" as used in the relevant Western Australian Statutes refer to the affording of relief, assistance or support to those in need but relief, assistance or support do not necessarily imply total provision.

5.5 There are three proposals which should be considered about the Speech and Hearing Centre.

(i) It could be integrated in the overall system of education of hearing impaired children in Western Australia. The organisation of the Centre within the system could pass to the Co-ordinator of Education of Children with Impaired Hearing.

(ii) The Centre could continue to operate under the control of the Board of Management of the Speech and Hearing Centre. State Government payment of teachers, but not other subsidies, could be discontinued on the grounds that if the Board wishes the Centre to continue operation as a private school the appropriate method of funding would be by application for Commonwealth Government subsidy.

(iii) The Centre could continue to operate under the control of the Board of Management, but payments made by the State Government for teachers' salaries should remain at the present level and further increases in the level of funds used for the education of children with impaired hearing should be directed to schools under Education Department control.

Council members are in favour of the first proposal because:-

(a) an integrated system would allow greater flexibility;

(b) better co-ordination of continuing assessment and diagnosis could be achieved;

(c) parents could see that alternate methodologies can exist within one system without the implication of opposition which must appear when two systems are operating;

(d) the better use of restricted economic resources would benefit children if the system were integrated;

(e) the strain which teachers may feel when working under divided control would be avoided and teaching strength would be improved;

(f) an integrated system would allow for more rational regional development as the size of the population increased.

5.6 The Council for Special Education has doubts as to the legality of the present situation. It is our considered opinion that proposal (iii) is not consistent with the provisions of the Education Act and we could find nothing in Education Department Regulations that would sanction a private organisation's control of an educational programme being taught by Education Department teachers. It is Council's view that the teaching programme at the Speech and Hearing Centre is the Education Department's responsibility and, since no documentation could be found to support the contrary view, it must be the case that the teachers at the Speech and Hearing Centre remain directly responsible to the Education Department. If proposal (iii) is to be considered a worthwhile educational arrangement we submit that the State Government should take whatever legal steps are necessary to enable the Minister for Education to delegate to the Board of Management of the Speech and Hearing Centre his administrative authority over the Departmental personnel employed at the Centre. At the present time it is apparent that the Education Department and the Board of Management of the Speech and Hearing Centre both claim some responsibility for the children at the Centre, but it is clear to members of Council that if the actions of a teacher in the course of his or her employment at the Centre become the subject of a court action, then the Education Department would have to assume responsibility for those actions.

RECOMMENDATION 18: In schools where Education Department teachers are employed the Education Department should have the right to organise those schools within the Department's overall system. This recommendation does not deny the right of private schools to operate as they wish within the limits of the Education Act.

RECOMMENDATION 19: We recommend that if the controlling body of the Speech and Hearing Centre decides that its school is to remain independent, the payment of teachers at the Centre by the Education Department should be discontinued.

5.7 We support the locating of special schools in close proximity to normal schools and commend the efforts being made by the Speech and Hearing Centre and Wandarra State Primary School to integrate children with impaired hearing into the sporting and social life of Wandarra. Provision for the integration of pre-school children with impaired hearing was incorporated in the planning of the new buildings for the Speech and Hearing Centre and three kindergarten rooms were built.

While commending the conception of the kindergarten, each room of which was designed to accommodate approximately six children with impaired hearing and eighteen children with normal hearing, we are concerned that the kindergartens appear contrary to rational economic planning and pre-school principles. We have been informed by a representative of the Western Australian Pre-School Board that at the time the kindergarten rooms were built more than adequate kindergarten accommodation was available in the immediate locality. Thus the provision of trained pre-school teachers for the Centres reduces the number available for areas not yet adequately supplied with pre-school teachers. A further result of over-provision of

pre-school facilities for normal children in the locality is that many hearing children are being brought to the Speech and Hearing Centre Kindergartens from widely separated areas, thus infringing the principle widely accepted in the education of young children that they should be educated in neighbourhood schools if possible. Whilst not wishing to deny the right of private organisations to make such provision as they consider most suitable, we consider that the Government has a duty to see that subsidies are used in the most efficient manner and therefore consider that consultation prior to the foundation of facilities which will attract Government funds is essential. As the need for such consultation is not confined to the area of the education of children with impaired hearing we propose that the following general principle be added to the list of general principles previously developed to guide the work of the Council for Special Education.

> AGENCIES CONTEMPLATING THE PROVISION OF EDUCATIONAL FACILITIES FOR HANDICAPPED CHILDREN SHOULD BE REQUIRED, PREFERABLY BY STATUTE, TO CONSULT WITH THE APPROPRIATE GOVERNMENT DEPARTMENTS AT AN EARLY STAGE TO ENSURE THE RATIONALISATION OF SERVICES.

5.8 The policy of the Speech and Hearing Centre regarding the early education of children with impaired hearing differs from that of the State Assessment and Guidance Centre. It is contended by the proponents of the method of education used at the Speech and Hearing Centre that the use of the method should commence at the earliest age possible. Included in the plans for the new building was an Infant House which children could attend with their parents from the age of ascertainment of hearing impairment. The Infant House scheme is not yet in operation and children can commence at the Speech and Hearing Centre Kindergarten at the age of three years. The policy guiding pre-school educational services as precursors to the school scheme proposed by the Co-ordinator of Education of Children with Impaired Hearing is that too early assessment is an inappropriate procedure. It is considered that it is usually only as a result of prolonged training that children are able to show the differential rates of progress in verbal language and speech which

will form a major part in deciding differential placement into schools for the educationally deaf and schools for the partially hearing in the scheme proposed by the Co-ordinator; and that such decisions should not be made in a large proportion of cases at least until the child is in his or her fifth year or at the time the child would normally commence primary school. In the proposed scheme the State early training programmes would be based on non-specific communication and teaching methods and children's development would be observed and evaluated before decisions regarding placement in schools using specific communication methods were made.

5.9 The State Educational Assessment and Guidance Centre for Children with Impaired Hearing is now the only agency to which parents are referred upon ascertainment of hearing impairment. It is said that parents are provided with full information regarding the Speech and Hearing Centre when they are counselled at the State Centre. This year only two children with impaired hearing started kindergarten at the three year old kindergarten at the Speech and Hearing Centre and the Board of Management of the Speech and Hearing Centre is concerned that the numbers of children being served by the Centre may be greatly reduced if the trend continues. Data which might permit an evaluation of the success of the programme of the Speech and Hearing Centre are not available and a data baseline for future evaluation of the success of the State system has just been established. Because of this we are unable to make judgements in respect of the relative merits of programmes which commence early with a specific method and those which do not. However, as parents are at present in the position of having to make a decision between different programmes we consider that they must be provided with as much information as possible before making their decisions.

RECOMMENDATION 20: <u>When parents of children with impaired hearing are being counselled regarding appropriate educational placement of their children, full information regarding available options should be given.</u>

CHAPTER SIX

TEACHERS OF THE DEAF

6.1 Teacher Training

Prior to the opening of the Victorian Training Centre for Teachers of the Deaf in 1954 the only formal training available in Australia for teachers of the deaf was the in-service Licentiate Course of the Australian Association of Teachers of the Deaf. Until then, the Western Australian Education Department, in common with those of the other States, had relied upon recruitment of overseas trained teachers of the deaf to provide a nucleus of trained staff. When the Victorian Training Centre opened, arrangements were made to reserve a place for a student from the Western Australian Education Department. Between 1954 and 1960 seven teachers successfully completed the course. The high wastage rate of the teachers who had trained at State expense seems to have caused a re-appraisal of the policy and no teachers were sent for training from 1960 to 1968. During this time teachers at the deaf schools were encouraged to complete the in-service course for the Diploma of the Australian Association of Teachers of the Deaf.

The policy was subsequently revised and since 1968 fourteen teachers have been sent to Victoria and New South Wales for training. Since the original arrangement was made the situation regarding the training of teachers to work with children with special needs has altered, and new courses for training special education teachers have been developed in all States. In Western Australia a one year graduate course in

special education is offered by Mount Lawley College of Advanced Education and special education has been included in undergraduate and post-graduate areasof study at the University of Western Australia. Members of the Council of Special Education believe that it may now be possible to develop a course for the training of teachers of the deaf in Western Australia.

RECOMMENDATION 21: A teacher education programme should be developed at one of the Western Australian tertiary institutions for the training of teachers of the deaf.

6.2 Teacher Retention

The wastage rate of teachers in special education is influenced by factors somewhat different from those affecting the wastage rate in general education. Two of those factors are the small number of special schools and the small size of the schools. Despite the fact that, for purposes of school classification, each pupil in a special school is counted as two pupils, only two special schools are classified as Class 1 Primary Schools, limiting promotional possibilities within special education. An allowance of $933 is paid to the principals of special schools but the amount is not related to the size of the school nor to the number of staff at the school. In order to gain promotion, teachers in special schools generally must transfer back to general education. It can be argued that movement between special and general education is beneficial to both teachers and pupils as it helps the teachers broaden their perspective and experience. On the other hand, given that higher levels of promotion are extremely limited within special education, it can be argued that the present system leads to wastage of teachers who are qualified and experienced in a specific field of education and that it is unreasonable and unrealistic for the Department to rely on the dedication of teachers as a means of maintaining expertise in special schools.

The present salary and promotional structure also seems to discourage the gaining of qualifications in special education. All teachers appointed to special schools transfer to a different salary scale, resulting in an increment of approximately $400, but the increment bears no relationship to extra training, experience or qualifications in the teaching of children with the particular handicap at the schools to which they are appointed. A degree level qualification has the effect of giving the holder increased salary but not training status in some circumstances. However, the situation can arise where the gaining of a qualification relevant to the field of teaching in which a teacher is working does not lead to salary or promotional advantage. If positions in special schools were to be advertised, a special qualification could lead to salary or promotional advantage, but no position within special education has yet been advertised.

RECOMMENDATION 22: Promotional prospects within deaf education, as within other areas of special education, should be such as to allow teachers to gain promotion and to receive recognition for relevant qualifications in special education.

6.3 Council members are agreed that it is essential that teachers of children with impaired hearing should be trained in all methods at present being used in the education of these children. The manual-oral controversy has been pursued with greatest vigor by teachers of the deaf who have been trained in one specific method and who have not a working knowledge of both systems (Moore, 1976, p.148). Their success with some children has led some teachers to maintain that one method is best for all children. However, there appears to be no one best method of teaching children with impaired hearing any more than there is one best method of teaching all hearing children. The following statement made about entrants to the only degree-granting Liberal Arts College for the deaf in the world, Gallaudet College, Washington, D.C., seems relevant:

> "We have been giving standard tests at Gallaudet College since 1928. We give them to students from residential schools, public and private, day schools, public and private, and from some 25 nations. Some have been taught by manual communication, some by oral communication, also making extensive use of auditory training, some by a combination of both. We also get students who have not been taught by any of these methods. It must be remembered that we do not give an examination in manual or oral communication in order to come to Gallaudet College. Where are the entering students weak? All, regardless of the type of school or type of communication used, are weak in paragraph meaning, and especially in vocabulary (Doctor, 1971, p.362).

RECOMMENDATION 23: Teachers trained to work in Western Australian schools for children with impaired hearing should be acquainted with the full range of teaching methods used with children with impaired hearing.

6.4 The isolation of teachers of the deaf in Western Australia means that it is difficult for them to observe educational programmes in schools different from their own or to study for higher qualifications. Provision of scholarships or travelling allowances to selected teachers within the State system could well be a means of improving and stimulating the teaching skills of all teachers of the deaf in Western Australia.

RECOMMENDATION 24: The Education Department should provide financial support to enable selected personnel to travel inter-State and abroad to keep abreast of recent trends in the education of children with impaired hearing.

CHAPTER SEVEN

EDUCATION OF THE ADULT DEAF PERSON WITH ACQUIRED HEARING LOSS

7.1 The incidence of hearing impairment in the adult Australian population is unknown, and in view of the fact that information detailing type of handicap was not sought in the 1976 Census, seems likely to remain so for some years. Part of the reason for this is that, unlike pre-school and school children, the majority of affected adults are ineligible for National Acoustic Laboratory Services. If hearing aids become necessary they are obtained from a variety of commercial sources. Estimates have been made which range from 10 per cent to 75 per cent of the adult population.

7.2 The onset of deafness in adult life is handicapping both vocationally and socially. Many jobs for which good hearing is required such as in retail sales, teaching, telephonist, become difficult or impossible if hearing deteriorates to a marked degree. Vocational rehabilitation or retraining may be possible under schemes administered by the Commonwealth Department of Employment and Industrial Relations and the Social Security Department Rehabilitation Service. The onset of hearing loss may lead a person to withdraw progressively from social contact as the demands of communication become harder. Speech may also deteriorate with increasing loss as the person becomes unable to monitor his or her own speech output.

7.3 The Association for Better Hearing (Inc.) (W.A. Branch) was founded thirty years ago to help adults with acquired hearing loss to understand and adjust to their loss. Although it does hold social functions, the aim of the Association is to assist

the deaf person to maintain normal social contacts rather than withdraw into a socially segregated life. As a means of realising this aim the Association provides classes in Lip-Reading, Auditory-Training (hearing re-education) and Speech Conservation (clear speech). The National Association provides a course of instruction in theory and practice which leads to a Diploma for Teachers of Lip-Reading. With present funding arrangements the Association is able to operate successfully in financial terms. Money is raised from street stalls, a yearly street collection and the nominal fees charged for the Association's classes. The State Government makes a yearly grant ($16 000 in 1976), and allows the Association to share premises at 141 Newcastle Street with the Public Health Department. The Commonwealth Handicapped Persons Assistance Act does not cover the population with which the Association deals.

7.4 Representatives of the Association indicated to us that they felt that it was unsuccessful in reaching large numbers of people who could benefit from its programmes. A common response to the onset of deafness in adult life is social withdrawal and an inability to admit handicap. Even when the handicap is admitted privately there is reluctance to seek help and thus admit the handicap publicly. The Association attempts to publicise the help that is available to hearing impaired adults in the form of telephone amplification, theatre hearing aids and its classes through public media and by means of speakers, but believes that the response is minimal.

7.5 Attempts have been made in the past by the Association to interest the Education Department in the provision of re-education for adults with acquired hearing loss. The Technical Education Division is seen by the Association as the appropriate agency for the provision of such education, because of its material resources and increasing experience and expansion in the field of general adult education. It is thought that the possibility exists that if classes were not provided in the segregated setting which they are at present, but were presented

within the context of a normal adult education programme, more people would be motivated to attend. An example of co-operation between adult education specialists and hearing re-education specialists exists in the joint project set up in Victoria in 1973 by the Adult Deaf Society and the Council of Adult Education to develop a course of thirty two-hourly sessions for adults with acquired, moderate or moderately severe hearing impairment. (Pengilley, 1974, p.96). The course was more comprehensive than that presently available in Perth and it is possible to envisage a course which could be given by the Technical Education Division, Adult Education Department which would incorporate topics such as relaxation techniques, body language, group dynamics (processes and learning) and communication awareness, which would appeal to hearing as well as hearing impaired persons. Such a course would be consistent with, and an extension to adult education of the Council's general principle that wherever possible education of the handicapped should take place in a normal educational setting.

7.6 The structure of a communication course within the Technical Division should be flexible enough to include instruction in the sign language of the deaf in Western Australia. Recommendation 15 related to the teaching of sign language to deaf school children. The courses in sign language run by the Adult Deaf Society are also attended by welfare personnel such as social workers and police, and occasionally by the parents of deaf children. Social acceptance of minority groups is more readily achieved if considered a two-way process. Council believes that sign language tuition for any person wishing to learn should be available within the Technical Education Division as part of a normal programme. Although the Adult Deaf Society has willingly provided this tuition we consider that the responsibility for providing signing tuition for hearing persons should rest with the hearing community rather than with the deaf community.

7.7 The Diploma for Lip-Reading Teachers of adults is not recognized by the Education Department and those holding it do not always have recognised teaching qualifications. No formal qualification for the teaching of sign language exists in Australia. If the Technical Division were to develop courses for hearing re-education and sign language the qualifications of those engaged to teach the courses would have to be considered carefully, but the problem does not seem insurmountable.

RECOMMENDATION 25: The Technical Education Division should investigate the feasibility of instituting courses covering all aspects of communication for adults with acquired hearing loss; for hearing adults who wish to communicate with deaf adults whose preferred language is sign language; and for hearing parents who may feel that the use of sign language would allow them to communicate more adequately with their deaf children.

REFERENCES

Ahlström, Karl-Georg. "On Evaluating the Effects of Schooling", in Proceedings of the International Congress on Education of the Deaf, 1970. Stockholm: Pedagogiska Skrifter 251, 1971. vol. I, pp.322-336.

Baker, B. "The Placement Committee of W.A.", in The Western Australian Society for the Advancement of the Deaf, Submission to the Senate Standing Committee on Health and Welfare, 1974.

Bates, Arnold. "A paper given to the All Party Disablement Committee at the House of Commons". The Teacher of the Deaf, 1973, 71, 95-101.

Clements, D., "The Causes of Deafness, its Diagnosis and Treatment", in The Western Australian Society for the Advancement of the Deaf, Submission to the Senate Standing Committee on Health and Welfare, 1974.

Dale, Phillip S. Language Development: Structure and Function. 2nd ed. New York: Holt Rinehart and Winston, 1976.

Dalladay, P.J. "Some Aspects of Deafness in Adult Life". The Teacher of the Deaf, 1974, 71, 201-206.

Department of Education and Science Survey. The Health of the School Child. London: H.M.S.O., 1964.

Doctor, P.V. "Vocabulary Development in the Early Years of the Deaf Child", in Proceedings of the International Congress on Education of the Deaf, 1970. Stockholm: Pedagogiska Skrifter 251, 1971. vol. II, pp.360-364.

Dunn, L.M. (ed.). Exceptional Children in the Schools. 2nd ed. New York: Holt Rinehart and Winston, 1976.

Fisher, B.J. "The Results of the Survey of Students in Western Australian Government Schools/Units for the Deaf and Partially Hearing Carried Out in 1975", State Educational Assessment and Parent Guidance Centre for Children with Impaired Hearing. Perth, W.A.: 1976 (Unpublished).

Fisher, Brian and Fisher, M.J. "Survey of Incidence and Educational Significance of Hearing Impairment of School Students of Mainly Non-White Racial Background in the Broome Area", State Educational Assessment and Parent Guidance Centre for Children with Impaired Hearing. Perth, W.A.: 1976 (Unpublished).

Flynn, J. "Oral Deaf Clubs", in The Western Australian Society for the Advancement of the Deaf, Submission to the Senate Standing Committee on Health and Welfare, 1974.

Friedman, Judith L. "Teacher Awareness of Hearing Disorders", in Haslam, R.H.A. and P.J. Valletutti (eds.), Medical Problems in the Classroom. Baltimore: University Park Press, 1975.

Furth, Hans G. Deafness and Learning. Belmont, California: Wadsworth Publishing Company, Inc., 1973.

Galloway, Victor H. "Technical Education at National Technical Institute for the Deaf", in Proceedings of the International Congress on Education of the Deaf, 1970. Stockholm: Pedagogiska Skrifter 251, 1971. vol.II, pp.434-444.

Green, Neville. "History of the Western Australian School for Deaf Children, 1896-1970", mimeographed, Perth: J.S. Battye Library, P.R. 6673 n.d.

Green, Neville. "Some of the Social and Educational Problems of Aboriginal Deaf in Western Australia", in The Western Australian Society for the Advancement of the Deaf. Submission to the Senate Standing Committee on Health and Welfare, 1974.

Haslam, R.H.A. and P.J. Valletutti (eds.). Medical Problems in the Classroom. Baltimore: University Park Press, 1975.

Hicks, D.E. "Gallaudet College and the Model Secondary School for the Deaf", in Proceedings of the International Congress on Education of the Deaf, 1970. Stockholm: Pedagogiska Skrifter 251, 1971. vol. II, pp.446-449.

John, J.E.J. and Jean N. Howarth. "An Argument for Oral Communication". The Teacher of the Deaf, 1973, 71, 102-109.

Johnson, E.M. "The Creative Deaf Child", in Proceedings of the International Congress on Education of the Deaf, 1970. Stockholm: Pedagogiska Skrifter 251, 1971. vol. I, pp.346-350.

McConnell, Freeman. "Children with Hearing Disabilities", in Dunn L.M. (ed.), Exceptional Children in the Schools. 2nd ed. New York: Holt Rinehart and Winston, 1973.

Mawson, Stuart. Diseases of the Ear. 2nd ed. London: Edward Arnold, 1967.

Miller, June. "The Role of the Diagnostician in Future Education of the Deaf", in Proceedings of the International Congress on Education of the Deaf, 1970. Stockholm: Pedagogiska Skrifter 251, 1971. vol. II, pp.715-726.

Ministry of Education. Children with Impaired Hearing, Circular 10/62. London: H.M.S.O., 1962.

Mittler, Peter (ed.). The Psychological Assessment of Mental and Physical Handicaps. London: Tavistock Publications in Association with Methuen & Co. Ltd., 1973.

Moore, Margaret M. "The Old Controversy - Need it Continue?". The Teacher of the Deaf, 1976, 74, 147-154.

Murphy, K.P. "Hearing, Deafness and Recent Research", in Wright, David. Deafness: A Personal Account. London: Allan Lane, The Penguin Press, 1969.

Myklebust, H.R. The Psychology of Deafness. 2nd ed. New York: Grune and Stratton, 1964.

Norwood, Malcolm J. "The Involvement of Deaf Persons in Services to the Deaf", in Proceedings of the International Congress on Education of the Deaf, 1970. Stockholm: Pedagogiska Skrifter 251, 1971. vol. II, pp.659-663.

Pengilley, P. "Education for the Adult Deaf Person with Acquired Hearing Loss" in The Western Australian Society for the Advancement of the Deaf. Submission to the Senate Standing Committee on Health and Welfare, 1974.

Redgate, G.W. "Research and the Teaching of Reading", in Proceedings of the International Congress on Education of the Deaf, 1970. Stockholm: Pedagogiska Skrifter 251, 1971. vol. II, pp.614-618.

Reed, Michael. "Deaf and Partially Hearing Children", in Mittler, Peter (ed.), The Psychological Assessment of Mental and Physical Handicaps. London: Tavistock Publications in Association with Methuen & Co. Ltd., 1973.

Reich, A. "Counselling for Deaf Adolescents", in Proceedings of the International Congress on Education of the Deaf, 1970. Stockholm: Pedagogiska Skrifter 251, 1971. vol. I, pp.204-208.

Schools Commission. Report for the Triennium 1976 to 1978. Canberra: Australian Government Publishing Service, 1975.

Silverman, S.R. "Hard-of-Hearing Children", in Travis, L.E. (ed.), Handbook of Speech Pathology and Audiology, New York: Appleton-Century-Crofts, Inc., 1971.

South Australian Committee on the Education of Hearing-impaired Children. The Education of Hearing Impaired Children in South Australia. Adelaide, S.A.: Government Printer, n.d.

The W.A. School for Deaf Children. Annual Reports, 1970-1975.

The Western Australian Council for Special Education. Education of Cerebral Palsied Children in Western Australia. Perth, Western Australia: Government Printer, 1975.

The Western Australian Society for the Advancement of the Deaf. Deafness in Australia: Submission to the Senate Standing Committee on Health and Welfare, 1974.

Travis, L.E. (ed.). Handbook of Speech Pathology and Audiology. New York: Appleton-Century-Crofts, Inc., 1971.

Unesco. The Present Situation and Trends of Research in the Field of Special Education. Paris. 1973.

Wedenberg, Erik. "Auditory Training - Its Objectives, Means and Limitations", in Proceedings of the International Congress on Education of the Deaf, 1970. Stockholm: Pedagogiska Skrifter 251, 1971. vol. I, pp.223-225.

Wright, David. Deafness: A Personal Account. London: Allan Lane, The Penguin Press, 1969.

CLASSES OF HEARING HANDICAP AND SOUND PRESSURE LEVELS OF COMMON ENVIRONMENTAL NOISES IN REFERENCE TO HEARING THRESHOLDS

Environmental Noise	dB	Hearing Level in dB (9)(a) I.S.O. 1964)	Class: Dunn (Silverman)	Degree of Handicap	Average Hearing Level for 500, 1000, 2000 Hz in Better Ear	
					More than	Not More Than
Threshold of Hearing Broadcasting Studio Whisper (1.6 m)	0 10 20	25	A	Not Significant		25 dB (I.S.O.)
Bedroom at Night Library	30 40	40	B	Slight (Mild)	26 bB (21 dB)	40 dB (40 dB)
Living-room Suburbs Private Business Office	50	55	C (II)	Mild (Moderate)	41 dB 41 dB	55 dB 55 dB
Conversational Speech (1 m)	60 70	70	D (III)	Marked (Moderately Severe)	56 dB	70 dB
Average Traffic at Street Corner Inside Motor Bus	80 90	90	E (IV)	Severe (Severe)	71 dB	90 dB
Inside Subway Train Automatic Punch Press (1 m) Loud Car Horn (1mm) Pneumatic Chipper Threshold of Discomfort Threshold of Pain	100 110 120 130 140		F (V)	Extreme (Profound)	91 dB +	

Adapted from Dunn, 1973, Tables 7.2, 7.3. Silverman, 1971. (a) dB Reference Level. International Standards Organisation 1974.

APPENDIX 1

APPENDIX 2

CLASSIFICATION OF CAUSES OF PRE-NATAL AND PERI-NATAL DEAFNESS

I PRE-NATAL

(a) Hereditary

Hereditary agenesis of inner ear

Hereditary abiotrophy of inner ear (pre-senile familial deafness)

Siebenmann middle ear type

Otosclerosis

Atresia

(b) Non-Hereditary

Maternal infection, especially viral diseases: rubella

Possibly other infections: influenza, encephalitis infectious mononucleosis (glandular fever)

Maternal nutritional deficiencies: malabsorption syndrome, beri-beri, diabetes

Drugs and chemicals: streptomycin, quinine, salicylates, thalidomide

Toxaemia of pregnancy

Threatened abortion

Severe maternal illness

Major surgery under anaesthesia

II PERI-NATAL

Prolonged or different labour

Premature birth

Birth injuries: instrument trauma, anoxia

Kernicterus (jaundice) as a complication of haemolytic disease of the new born resulting from Rhesus incompatability

Convulsions

Cerebral palsy

(Adapted from Mawson, 1967 and Reed, 1973.)

APPENDIX 3

CLASSIFICATION OF CAUSES OF POST-NATAL DEAFNESS

I CONDUCTIVE DEAFNESS

External Ear
- Acquired atresia
- Cerumen (wax)
- Foreign body
- Inflammatory swelling
- Tumor

Middle Ear

Trauma
- Haematoma
- Rupture of membrane
- Disruption of ossicles
- Barotrauma

Infection
- Secretory otitis media
- Actute otitis media
- Chronic otitis media
- Adhesive otitis media
- Tuberculosis
- Syphilis

Eustachian Dysfunction

Tumor
- Carotid body tumor
- Carcinoma

II PERCEPTIVE DEAFNESS

Inner Ear
- Primary cholesteatoma
- Trauma
  - Concussion
  - Fracture
  - Acoustic
- Labyrinthitis
  - Infection
  - Toxic
- Meniere's disease and allied conditions
- Senility (Presbycusis)
- VIIIth nerve tumour (in internal auditory meatus)
- Central Connections
  - Cerebello-pontine angle lesions
  - Disseminated sclerosis
  - Vascular accidents
  - Tumors

III PSYCHOGENIC DEAFNESS
- Malingering
- Hysteria

(Adapted from Mawson, 1967, p.126.)

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